

# TOIKE \*IKE \*IKE

Feb. 26, 1970



## TOIKE ANTI-POLLUTION PROTOTYPE VEHICLE

see page 7 for  
exhaustive details



## ENG. SOC. PRESIDENTIAL CANDIDATE Mike Sefton 7T1

It seems quite apparent (at the time of writing) that the election for President of the Engineering Society will be uncontested. In other words, I would have won the position by acclamation. However, because of the nature of the position of President and of the amount of influence that he must exert in being effective, I decided to contest this election. I am asking for a vote of affirmation. On election day, therefore, you will be given a chance to consent (or to withhold your consent) to my becoming your President.

Therefore, to better enable you to make this decision I am writing this article to introduce myself to you and to explain to you what my policies for the next year will be.

For those of you who don't know me, perhaps I should state (modestly, of course!) what I consider to be my experience for this position. In my Second Year, I was Secretary of the Society and was given a chance to gain experience with the more administrative tasks of President (correspondence, meetings, etc.). More importantly though, this past year I was both Treasurer of the Society and a student representative to the Faculty Council. It is with the experience gained from these two positions that most of my policies for next year are derived.

One of the problems that has faced the Engineering Society over the past few years has been the size of its debt. It has seriously hampered the extent of its operations, both because of the lack of funds and because of our credit rating. Over the past two years, about 75% of this debt has been paid off, but because of the "tightness" of the budget that this necessitated, good financial control is necessary to pay off the rest of this debt. Without this control, it is very easy to fall back into an even greater state of indebtedness. I think, with my experience as Treasurer, that I will be able to exert sufficient influence, for the Engineering Society to eliminate its debt and come out in the black.

The Engineering Faculty Council, upon which I have been seated as a student representative, has begun work, this year, on two very important issues that affect all students in Engineering. One of these is the semester system and the other is a revised governing structure for the faculty. It is very difficult to explain exactly what

these proposals are, in this limited space (Perhaps, this should be my first duty as President), but I can explain, in a general manner, what my policy towards these is.

The semester system, must be so designed that each and every student is able to learn what he wants to learn, whether it be what he is learning now and something he would like to learn but because of the tight curriculum system we now have, he cannot. In other words, it is just as important for engineers as it is for arts students that the curriculum (the semester system) be flexible; so flexible that any student in Engineering can do "his own thing", so flexible that every student in Engineering is mature enough to decide what and how he should or should not be studying towards his degree.

This is where the governing structure of the faculty becomes important, so that each student can determine what it is he wants and so that each student can inform the Faculty of what it is he wants and so that the Faculty can act in such a way to provide what it is he wants the governing system must be so designed to allow these (and other) operations to be performed efficiently. This efficient governing structure must be able to both hear and answer the demands of all it must govern. This is especially important with regards to the students for it is on their behalf that the University has been set up. Therefore for this structure to be efficient it is essential that students be effectively represented on all bodies set up in this system. With students representatives, distributed throughout the structure all branches of the structure can respond quickly, intelligently and effectively to the demands of the students.

Because of my experience I think I can work effectively as President to make your opinion count, on such issues as mentioned above.

In order to be able to work effectively with the Faculty, it is important that I have your consent, to my taking on this position of President. This can be done by marking an 'X' beside my name on the ballot on election day. If a significant number withhold their consent, I will be forced to refuse to take on this position and another election will have to be held to elect your President.

It's up to you! Make a good choice!

## SAC REP CANDIDATES

JOHN BROWER  
CIVIL '71

Student participation will be the key issue facing the university in the coming year. The CUG report views learning as a "shared activity" and implementation of this concept into the learning process will require basic changes in the present structure; especially in engineering. The preliminary objectives for an educational environment, published by the Engineering Society last year, must be expanded and its guidelines implemented. Students must have a meaningful say in the purpose, content, and method of THEIR education.

Student involvement requires a knowledge of what student government is all about. There must be feedback from SAC to the student body. SAC reports should become a regular feature of the Toke and summaries of each SAC meeting should be posted at various locations throughout the faculty. Students must become aware of what their representatives are doing for them.

The above constitutes the framework in which I will work as your SAC representative.

### MICHAEL J. LEE CHEMICAL ENGINEERING

While I call upon your free will indulgence on a vote, I make you no promises of free women and free drinks!!!

When you hit the SAC, surely enough you don't accept just cold plain layouts! As an Engineer, you want to stimulate every functionary! This returns you involvement and improved feedback. Only then comes pleasure in an academic life without suffering from impaired drives!

Whilst for food in the cafeteria we pray, and hopes in an Engineering Pub we invest, there is place for much left to be done:

(i) It is likely that we have all been assured of the SAC's existence, but it is also quite likely that we're unaware of all the policies it laid for us. But most important of all, we must know as to whether they are relevant to us. There was quite a hew and cry over this issue of RELEVANCE and most of student annoyance is reflected in referendums held.

I would like to structurize a RELEVANCE and bridge the trouble generating gap created by its absence!!!

(ii) We impregnate SAC with our money and support, but somehow it is apparent that the output suffers a grave miscarriage!!!

I would like to get the SAC machine on the roll and also ensure that rather than have SAC babies in our laps we get SERVICE!!!

(iii) We notice advertisements for SAC committee members. But somehow, the activities of these committees in terms of progress are seldom known or even heard of. My intention is to formulate an exposure of what seemingly is their activities in the dark. This amounts to the same as COMMITTEEAL or FUNCTIONAL STIMULATION!!!

(iv) Rather than just being TOLD of what is being done, I would like to see that we are well involved. Having a representative body is not enough. An altogether participatory and active one is always gratifying!

There is little we hear of or hear from SAC. Isn't it about time?

## AND THEN THERE WAS NONE . . .

Do you remember Skulebook? How about the Skule Dinner? The At Home, SkuleNite and The McGill train? All these institutions have died in the short space of time since 1967.

In addition, what pale shadows of former times such institutions as the capers, initiations, Blue and Gold etc. have become. Even athletics has suffered. From what? Galloping disinterest that's what.

Which brings us to our current quandary: the election (of sorts). Since this is being written on Sunday, there is no way of telling whether there has been a spontaneous surge of nominees when nominations re-opened on Monday and Tuesday. Going on the basis of Sunday's information, the sorry sight of the nominee list is sufficient testimony to the concern of students.

"Wait" you cry. "The Engineering society is not relevant to students. That's why they didn't care."

One might accept this hypothesis were it not for the fact there are only 25 nominees for the 21 Faculty Council positions. One could hardly term the Faculty Council irrelevant since it does deal with such trivial matters as what you study, who tries to teach it to you, and whether you pass or fail.

Perhaps again we have a failure to communicate.

Wherein may we lay the blame for this unfortunate state of affairs. It would be tempting to do as some have done and accuse the present Engineering Society and its predecessors of not being close enough to the students and drumming insufficient interest in these things. There is some evidence

that the problem is deeper than that, however.

It is the stated opinion of the faculty that "It is in general desirable for students to engage to a reasonable extent in extra-curricular activities in order that they may not become too narrowly professional in interests and outlook" but this seems to be as far as they are willing to take it.

A number of excellent candidates who might have run for election or re-election have declined to do so on the basis that they can't afford to lose the time from their studies, these are not borderline cases, mind you, but good students who play the game well enough to gain smiles of approval from their professors.

For those of us left who cannot bring ourselves to assign priorities other than infinity to our "work" the possibility of flunking our year or doing poorly enough to lose jobs, scholarships etc loom large indeed.

Perhaps the problem can be summed up by one student who said:

"It sure isn't like what you hear from your parents about how it was when they went to university. All it is a damned grind. I'll be glad when these four bloody years are over and I can forget about this place."

That doesn't sound like someone who would care to donate his time to anything associated with this institution. Yet the institution is continuously intruding on his time without being asked.

For example one professor had the incredible gall to suggest that since he didn't want to lose any

Continued on page 4

### ALEC BURGESS: SAC REPRESENTATIVE

I support the following points:-

1. Representation of the Engineering Society viewpoint to SAC.
2. The use of SAC influence to promote increased, on campus, summer job opportunities for undergraduate students (especially Engineers).
3. Encouragement of increased feedback from students to faculty regarding course content.
4. Closing of St. George Street to through traffic.
5. Increased parking facilities for undergraduate students.

At present there are no undergrad-

uate parking facilities near the Engineering buildings.

I oppose the following points:-

1. Interference with Engineering student rights to secure employment through on-campus interviews, by industry.
2. The continuation of the Spadina Expressway as planned, due to its detrimental effects to the St. George campus and its students.

### PAST EXPERIENCE

Highschool Student Council representative.  
Inter Fraternity Council representative.  
Volunteer social worker for A.D.A.R.F.

EFFICIENCY is also what I stress. While I've outlined my basic policy and before cashing in on your vote of confidence for better returns I would like to assure you that you will hear of any additions formulated in times that are unpredictable. After all, I'm no crystal ball expert!

Therefore, for an analytical approach, committeeal or functional stimulation, an application of physical vigour, structural methods with appropriate formulation and I hope, with your help and vote of confidence, to drive the crankshaft in getting the SAC machine on the roll, thus producing an electrical discharge that will spark a chain reaction of RELEVANT, EFFICIENT, INFORMATIVE SERVICE and better STUDENT-SAC INVOLVEMENT!

IT's elementary, Engineers! MIKE LEE is your voice in SAC. BE HEARD!!!

### Derek Smith Chemical II

Sons of Godiva? Cum to the barricades. Prepare for the overthrow of the capitalist, imperialist, warmongering, swine? (Gee that sounds impressive) But that's not my SAC. I'd rather occupy Claude T's office. However this position is not open so I'm running for SAC Rep. I am confident that I can do a good job of representing Engineers and Engineers' views, and that is what I want to do. Represent you, the students, not make grandiose pronouncements on how to save the world. So get out there and vote for the big S. SMITH. I'm the greatest (my mother says so). PIECE.

## Imants Jumis Mech. 7T3

Reading about the accomplishments of SAC in the Varsity during the course of the year, I decided to run for the position of SAC Representative. The impressions that remain strongest, of the previous year, are of money being spent for seemingly ridiculous purposes. The money could have better been spent helping you directly. Granted the Public School system isn't perfect in this city and work could have been done improving it, but I couldn't quite agree with the donation of a few thousand dollars to set up a school outside of the system for a handful of students

whose parents felt were done wrong by. The money could have been spent more wisely, helping University students. The amount spent could have hired a researcher and expiditor to get a Campus Centre built. I feel that SAC has begun to stray away from the needs of the University and we have suffered because of this. True the things mentioned are just two little things, but they are an INDICATION of what I would like to see. Bring SAC back to the people who finance it. Vote Jumis for SAC REP. VOTE JUMIS for SAC REP.





## BLOOD DRIVE

PINTS FOR PINTS

Give a little blood  
between periods!

Show that you're not  
afraid of the prick!

TIME: Monday, Tuesday  
March 3 & 4

PLACE: Galbraith Bldg.  
3rd Floor Common Room

### TOIKE STAFF

From Left to Right Above

Sports Editor: Doug McCallum, Typing and Layout: Jean Bubba, Business Manager: Ken 'Hugh Jordan' Clarke, Phatarunt: Warren Jacobs, Faithful Typists: Knar Basmadjian and Karen Robinson, Flaridaduck Correspondent: Alice 'Ken' Westbraak, Middle:

SAC Reporters: C. (eta) Masthead and Eric Floir ta Miglin, Associate Editor: Brian Leathem

In Front:

Bengal 'Peter' Jones, Editor — in-and-out-of-Chief

# TOIKE OIKE



Room 105 — mill bldg. — 928-2916. Devoted to the interests of the undergraduates of the Faculty of Applied Science and Engineering. Published every now and then by the Engineering Society of the University of Toronto.

THE ROCHDALE COLLEGE LILY POND LEAGUE ANNOUNCES . . . THIS YEAR commencing on spring solistace a series of unscheduled gatherings in unspecified dormitory sections for the purpose of determining that there is something beyond left and right in the politics of experience and the revolution of awareness. Anyway, we're going to be here all summer. Why don't you come and join us.



Single rooms with community  
kitchen..... 70-73 mo.

Double rooms with community  
kitchen..... 50-53 mo.

Single rooms with kitchen  
in unit ..... 80 mo.

Double rooms with kitchen  
in unit ..... 60 mo.

## ROCHDALE COLLEGE

341 Bloor St. W.

921-3168

Come live with us . . . THIS SUMMER

Continued from page 2

lecture time for a term test, his class could have the privilege of writing the test on a Saturday or perhaps a week night. Aside from the practical consideration that some students have jobs or other commitments outside school hours, there is the naked fact that this faculty member is exposing the feeling while many staff members feel: "Your time belongs to us. You have paid it to us along with your \$717 a year in return (maybe) for a paper which we will give you if you can endure four years here."

However enough of this. I think the source of the disinterest is sufficiently well known. Nearer and dearer to our hearts: What of the TOIKE?

In reply to our request for people (ie engineers artsies even profs or janitors) to be part of next years staff we received a

massive response of no (0) replies. Well possibly we can scrape together some people and put out a Toike but for whom?

Our major problem is a sort of "is there anyone out there" thing. The copies dissappear but we get no feed back at all. We really have no idea whether there is any point putting out a Toike at all. An engineering society made up of acclamations with no campaign can't tell us. It might be that our function could be as well served by a mimeographed newsletter at a much smaller cost.

This is pretty well the last chance. As this last Toike appears, our only means of direct communications is severed. We still have a mailing address (room 105) Mill Bldg. U of T — free university delivery from anywhere on campus). We still need sports staff and photography and business and typing etc. etc. etc. for next year. If there is a next year. So who cares?

## LGM BLURB

Caper 69-70-68

We played a tremendous caper and won. I won't write about the first half because you probably saw it on the news, however, later on, we went to Whitney Hall and installed a symbolic red light bulb (in honour of St. (pope?) Valentine). Things got out of hand. When the bulb was being put in some rowdies (the band) began yelling "screw, screw" so they did and he did and we did and the light came on

Caper 69-70-68.5

Wow! did we ever put on a fantastic show at the At Home!



*This bosomy beauty from  
Brussels,  
Learned to fly with her pectoral  
muscles.  
She takes off and lands  
With her mammary glands  
And whenever she's grounded,  
she hustles.*

## LIVE FROM QUEBEC CITY

By John 'Barney'  
Swallow

Quebec City (T.P.) — The Congress of Canadian Engineering Students, gathered at Quebec City, Feb. 20-22, to discuss the future of the Canadian North. At times the discussion became a conflict between the exploiters and the ecologically-minded.

For example, in discussing the voyage of the Manhattan, Gome Charbonneau, president of the Quebec Exploration Society, with a "hang of the side effects" attitude, felt that the most important factor was getting the oil to market. He would depend on others to come up with whatever safeguards may be necessary.

Most of the students, on the other hand, felt that it was important to look at the north in a context larger than merely the economic. They decided that the most important approach was to optimize the benefit of northern development for the people living in the north-land and those to come.

## 4th Year President

J.S. Roulston  
Chem 7T2

The position of fourth year President carries with it considerable responsibility. As well as being an important representative of the graduating class on the Engineering Society Executive, he is responsible for the arrangement of the Grad Ball and the iron ring ceremony.

I feel that the major task facing the Engineering Society in the next year is the speedy establishment of a formula, agreeable to all, for electing student representatives to the Faculty Council. Continued procrastination on this issue could prove disastrous. At present, the Faculty Council is considering several important changes in the curriculum such as a switch to the semester system and a new course weighting system. If we do not have strong voting representation immediately, the Faculty Council may serve us up with an unintentional snow-job which we will have no alternative but to accept.

If elected, I shall work diligently to this end and bring energy and fresh thought to the specific duties associated with this position.

If we can still make an offer like this  
after 101 years  
...you can rely on it.

### A Fair Offer

"If you will put a Jenkins Valve, recommended for your particular service, on the worst place you can find — where you cannot keep other valves tight — and if it is not perfectly tight or it does not hold steam, oil, acids, water or other fluids longer than any other valve, you may return it and your money will be refunded."

*Jenkins Bros Limited*

This offer was first published in 1869 and is republished from time to time as a reminder that quality and craftsmanship are an integral part of every Jenkins Valve you buy.  
Jenkins Bros. Limited, Lachine, Que.

SOLD THROUGH LEADING DISTRIBUTORS EVERYWHERE

**JENKINS  
VALVES**

LOOK FOR THE JENKINS DIAMOND





## ENGINEER RUNS FOR SAC V.P.



Vice-Presidential Candidate  
Eric Miglin  
Engineering SAC Rep

Eric Miglin, an Industrial Engineering student, is running for SAC Vice-President.

Miglin is both an Engineering Sac Rep and a member of the Toike Editorial Staff this year.

He was active politically on the campus this year and his views were often expressed in this paper.

Miglin says that his experience on SAC are what have lead to his decision to run.

He is thoroughly unhappy with many of the things that SAC have done this year. He feels that a number of people on SAC are quite unrepresentative of the students who elected them.

Miglin feels that SAC this year was unresponsive to the wishes of the students at large. He pointed out the examples of SAC refusing to accept the petition regarding union contracts which 2300 people, including 600 engineers, had signed.

He pointed out that this was more than the number of people who put Gus Abols into office.

Only eight people, including himself, on SAC were in favour of

accepting the petition. He termed SAC's actions a flagrant disregard for its constitution and a callous negation of the wishes of students on this campus.

It is interesting to note in passing that on examining the roll call vote, one finds that both Wayne Richardson (another Eng. SAC Rep) and Ken McEvoy, running together for the SAC Presidency and Vice-Presidency, voted against accepting that petition.

Miglin was also concerned that SAC should attempt to present all sides of issues. This has not always been the case this year; for example, the CUS Referendum where the anti-CUS campaign received only half the amount that the pro-CUS workers did.

Miglin is running with Rod Hurd who is presently President of Scarborough College and has impressive qualifications with regard to student government. Together they make up a team which could certainly provide a new outlook for SAC.

Hurd and Miglin gave the Toike a summary of their platform and it appears in the adjoining column.



Presidential Candidate  
Rod Hurd  
President, Scar. College

## HURD-MIGLIN

### SAC MUST BE RESPONSIVE

We believe that there must be upward communication from the students, rather than downward politicization by SAC. We feel that it should endeavour at all times to find out what the students want.

An integral part of this would be a greater dialogue between SAC and local college councils. We also feel strongly that SAC should encourage free and open discussion of all sides of issues as has not always been the case this year.

### CONCERN WITH CAMPUS ISSUES

SAC exists basically to fulfil the needs of the students and as such we feel that SAC, in its activities, must remain relevant to the students in a concrete way. Certainly, though, SAC should become involved in issues of immediate community concern to the students such as, 'Pollution Probe' and 'Stop Spadina' as well as 'community action programmes' in which students are intimately involved.

### SAC AS AN INITIATOR

SAC has great potential in terms of resources, both in money and manpower, which gives SAC the opportunity to throw a lot of weight behind a worthwhile project. It could give it the impetus and, in a sense, get the ball rolling. Then once this project is going it could find another group to take it over and SAC should get behind some other project. Basically, SAC should endeavour to make as many services as possible, both self-contained and self-perpetuating.

### PRIORITIES

SAC often is one-sided in its view of the needs of students in

determining its priorities. We feel that SAC should constantly keep in mind that the needs of students are many, and are not only political, and that SAC must attempt to cater to all the needs of the students.

### FISCAL RESPONSIBILITY

SAC must definitely be more concerned and attentive to how money is being spent. There are examples this year of where a SAC commission granted money to what later turned out to be a non-existent club. Certainly SAC should be much more prudent in dispensing with its money and it should investigate more carefully before it hands out money to nebulous groups.

More importantly, SAC should examine financial requests in terms of whether or not it could do more, perhaps by sending help in the form of manpower. SAC does not always have to send money.

### HONESTY AND CO-OPERATION

We feel that the SAC, as the representative of the students, must always engage in negotiations with a spirit of co-operation and compromise. Certainly SAC should always strongly voice the student viewpoint but it must never prejudice the possibility for meaningful discussions to take place by being too dogmatic in its approach.

### DISCIPLINE

We believe that SAC should work for the immediate implementation of the Campbell Report. SAC has argued this year that one cannot implement Campbell until one has implemented CUG; but, we feel that some inroads into Campbell can and should be made now.

### COMMISSION ON UNIVERSITY GOVERNMENT

We will work for the implementation of CUG principles which will certainly have to be examined at local levels in terms of the specific situation existing at that level. We feel that more SAC assistance is required in implementation at the departmental level. We also feel that the University Commission of SAC should strive harder to synthesize student opinion on CUG.

### CAMPUS CENTRE

SAC has bungled attempts to get a campus centre over the past few years. If SAC had approached the project in a less dogmatic manner perhaps we would have a campus centre today.

We feel that SAC should re-open negotiations with private sources for financing the centre. A strong fund-raising campaign would also be in order. A student levy of \$15-20 for the next 20 years should be considered as a last resort, if it is to be considered at all.

### U OF T PLANNING

A strong student voice must be developed which will actively influence U of T planning and building projects.

We must build a strong student-faculty-administration lobby to increase government financial responsibility for the renewal of existing facilities as well as the construction of new buildings. This is a problem unique to the University of Toronto. As it now exists, all financing for renewing old buildings must come from operating expenses, thereby leaving less money to hire staff or cover all the other expenses involved in running a university.

# WORK IS OVER

IF YOU  
WANT IT  
Flunk Out  
Now

Happy Summer  
From  
the Faculty



Spokesmen for the professional faculties today denied that their students had any right-wing tendencies. General Maclellan of the Engineers, speaking also for Generals Barwell and Vernane of the Meds and Laws respectively, said that they had no idea where the charges of latent capitalist-fascism could have originated.

## IT'S TOIKE THANK-YOU TIME!!!

Firstly we would like to thank Web Offset Ltd. our dear printer, without whom we would still be cranking the mimeographs on our first issue. They have staunchly put up with all our eccentricities and even printed most of them. Thanks also to Jan, the inimitable

Eng. Soc. secretary, who handles our mail (no one can handle our mail).

Gratitude too, to Pizza-Pizza, Nanking Tavern Chinese food and all the other exotic establishments which supply our make-up needs.

Our deepest sympathy to the Mill Building watchman and the 4:00 am Don Valley Parkway Police Patrol, both of whom we mystify.

Felicitations also to our advertisers, many of whom had to settle for less than the half-page under

the Toike Joikes.

Finally we must pay tribute to the Varsity without whose example of technical excellence, journalistic distinction and editorial competence we would never have learned to write such a dishonest paragraph as this.





Plain-Clothed 'Nore' Investigates Obscure Campus Group Looking for their Source of Motivation

## SOUTHERN BIGOT FINDS FRIEND IN TOIKEDITOR

Dear Peair:

Here we are motoring through the states. We just passed Southern Liquid, and are now entering Northern Va pour. Its been a solid journey hope you enjoyed this letter. A

Love Alice.

P.S.

This has been a tremendously enjoyable and informative trip. We have seen many new and exciting innovations. For example in Sweetwater Tennessee they have digital thermometers and clocks. The lights flash on and tell the temperature, next they flash on and tell the time. On this particular day the temperature 3.12 and the time was 46 hours. There are special instructions to convert from American degrees to Canadian degrees. First you multiply 3.12 by 5/9 then convert to Rankin then to Absolute. From here you add 32 and divide by 8/65 the result immediately tells you that it is 46 F. The time conversion is more difficult and requires the use of Cook's variable constant. After approximately ten seconds of mild effort it becomes obviously that the time is 3:12 give or take 10 seconds.

We found that everything in Con tukky is blue. One service station even went so far as to advertise Con-tukky Blue GAS. The main reason for the fantastic quantity of blue in Con-tukky is the temperature. When we passed through it was about 31 degrees F and snowing. This blizzard (No. 3 inches) closed everything even our windows. The local residents were very unfriendly and seemed to blame the weather on the air con-

ditioner in our Rambler. John seemed to think it was caused by the Snow-Flake button that I was wearing.

The Americans love Science. They put up signs telling you everything, no matter how obvious it is. When entering a region of towering cliffs with tons of loose rocks at the bottom and spewing across the road a sign said "FALLING ROCK ZONE". Later on in the mountains we came across signs that read "FOG". In one town which was sanitation conscious a sign read "LITTER BARREL 1500 ft" 500 ft latter the sign said "CONSTRUCTION 1000 ft. and sure enough there they were building the worlds largest litter barrel (46 Imperial liters or 46,000 cubic centimeters).

The most valuable experience came when we encountered a most remarkable demonstration of Notwen's Principle of negative gravity. This was first discovered by Gif Notwen who was standing under an Apple tree when a large ripe apple leaped off his head and firmly attached itself to the tree. Notwen's first reaction was to call this new phenomenon a great pie in the sky, however upon close examination he decided that he was being a bit crusty and dubbed it negative gravity. And now for the nitty-gritty (apple seeds dummy.) We were headed for Dalton but the mileage signs kept reading things like DALTON 15, DALTON 11, DALTON 12, DALTON 13, DALTON 14, and that was the last we saw of them until about 9 miles latter we came to DALTON.

FLORIDA. . .  
Well Peair, while travelling in

Florida and finding a place to stay we met many interesting people. One of them professed to be a latin scholar and from him we learned the meaning of "VELEUT ET ARBRO" (the big U's motto) It is "Never sleep under a tree in a dog pound".

Unfortunately there was a conflict of opinion. Another person we ran into thought that it was a distortion of an early American saying "WALLET IN KYBO" which loosely translated means, "don't flush unless you have a dime." (the Americans also invented the pay toilet.)

Florida is the U.S.'s second largest beef producer (we sampled some of the meat . . .) Also they are the worlds third largest producers of Alligators. This results in there being the worlds largest producers of tail-gators. At any rate (d(v)/d(t)) we were traveling down highway 69 lickity split when we ran out of gas and had to coast to the nearest service station. The attendants thought that it was the longest Gulf coast they had ever seen.

We soon found out that Florida isn't dry. In fact there were local outlets of the L.C.B.F! around every corner. They pour alcohol over the trees and fields which results in two distinctive entities. First of all the first have a lush growth and the lawns come up already cut.

The view was EXCROGENATING. From the window we could see a rabbit farm which burnt down (a hare raising experience) and all sorts of water, beach, wow!! oh!! and OOOH! F! and !! but we won't go into that.

Behind the hotel was a mass of

trees and Spanish moss (plus flies) (which we learned grows on the outside of the trees facing MECCA.). A local resident informed us that we needn't fear animals or reptiles since the dangerous ones are found only in southern Florida. To which John replied "Am I ever glad they keep the alligators in the swamps". John unfortunately is no longer with us since it is legal to feed negroes and obnoxious whites to the crocodiles.

At one point we walked down the beach and found a large edifice piercing into the gulf, and even saw some real breakers. These occurred when a 67 year old hunchback dwarf was rolled for his sunglasses on the beach. By the time the police came just about everything was broken.

All in all (America for SEX) Florida is warm and sunny and clean and commercialized however the air is for the birds . . . Alice your friendly Florida correspondent?



Americans are generally bilingual. A typical stop sign (really) from Florida."

**ALICE  
AND  
OILY  
DUCK  
BY FUZZ**

While we were in Florida a large tanker spilt oil in Tampa Bay. John and I assisted the local citizens in Operation Duck. This included rounding up oily ducks and cleaning thick, tar-like oil from them. The oil softens their beaks and claws and causes open sores in their skins. It is estimated that only 350 of 350,000 birds affected will live. Some new legal controls and effective cleanup equipment are needed in order to prevent another disaster of this sort of disaster from occurring again.

Having been deeply moved by this experience I began to make my life work to favouring ducks. Unfortunately I was cut short after only two days in the field by getting semi-arrested. One evening while searching through someone's yard for ducks, I heard voices and when I emerged I was confronted by one paddywagon, fifteen police officers, two searchlights and three patrol cars. After extensive interrogation, I was released, having signed two affidavits promising never to cause such a flap again.



# RACY SUPPLEMENT



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## TORONTO ENTERS RACE AGAINST POLLUTION

University of Toronto engineers are entering their own jet propelled time bomb in the most exciting event of the American auto year, the M.I.T.-to-Caltech Smokeless Car Race.

Professor P. B. Hughes, secretary of the Faculty's just-formed "Clean Air Car Committee" announced today that a firm commitment has been made for the event, officially known as the 1970 Urban Car Competition. Chief driver will be M. Eng. student Douglas Venn, of Mechanical, who has also been entrusted with overall supervision of design and construction of what promises, he says, to be "a very unusual vehicle."

The Race is presently scheduled to start from MIT's Cambridge, Mass., Campus on August 24, but Doug and his team-mates, all students, must be there by August 19 to prove the thing will work in a series of exacting mandatory preliminary performance tests.

The joint sponsors of the race, the Massachusetts Institute of Technology and the California Institute of Technology, have promised to change the race route, if they can, to make Toronto first stop on the six-leg marathon that should reach Pasadena around the end of the month.

The idea of entering a Varsity car in the competition hit Venn like a stroke of lightning while he was down in Detroit, Jan. 12-16, at the Society of Automotive Engineering Congress Exposition. There he met Dr. Richard Thornton of MIT's Department of Electrical Engineering. Thornton mentioned the race and Venn wanted to hear more. Venn was promptly hauled off to lunch with R. R. Aronson, president of Electric Fuel Propulsion, makers of the Mars II experimental electric car, and Al Hartman, president of Hartman Electric Co., two sponsors of the MIT entry.

Doug doesn't say what they put in the drinks, all he remembers is that everyone got more and more excited about the prospects for the race and he had soon won promise of a detour through Toronto if Varsity made the starting line. He didn't hit ground again until he was back in Toronto in the Mechanical office. There, it was quietly pointed out to Doug Venn that these things just don't happen without vast expenditure of effort, time and money.

But, unknown to everyone here, Doug had brought back some sort of highly contagious virus. First Professor Hughes caught it and then he passed it on to Department head Dr. G. Ross Lord.

To quote from the Mem. that Professor Hughes sent to the head:

"When first informed of this, two opinions passed through my mind."

(a) It is quite out of order for a young M. Eng. candidate to commit the University to anything; and

(b) We have been in sad need of the 'Nelson touch' and we ought to go hell-for-leather to back it up when we get it."

Hughes chose option (b) and advised Venn to put his proposal formally to:

• The Department Head;

• Professors F. C. Hooper and W. D. Baines of the Wallace Estate Committee;

• Professor I. W. Smith, Cockburn Professor of Design;



**Prime Mover,  
Doug Venn**

• Professor A. B. Allan, his graduate supervisor; and

• Professor Scott, as Air Pollution Control representative.

The virus didn't take long to infect Dr. Lord and soon half the Mechanical faculty were carriers.

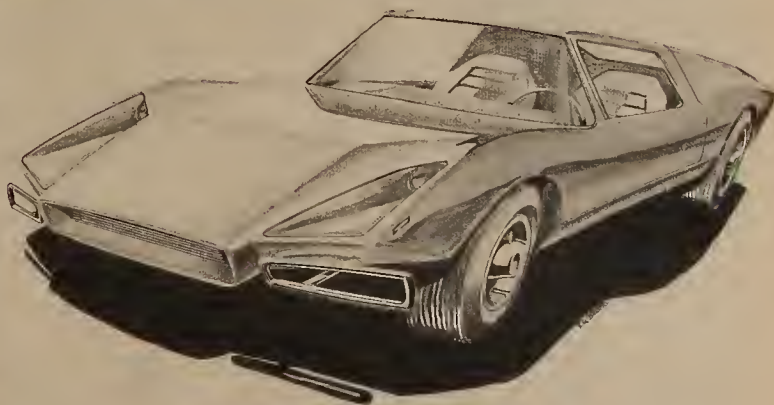
The crucial meeting took place on January 22, two days later.

Doug Venn told his story again and submitted his preliminary estimate of cost at \$18,700. This would include \$2,500 for a rebuilt chassis, \$3,000 for a finished body, \$2,500 for the drive train and \$3,000 for converting a standard Chevrolet V-8 engine to bottle gas fuel. The 40-day work-up period would absorb, perhaps, another \$2,000, he thought, and that would leave \$5,700 for the costs of the actual race.

Professor Hooper was enthusiastic. He said he regarded the project as a first step into a faculty-wide participation in the Air Pollution problem. He revealed that he had already consulted with Professor Baines, another member of the Wallace Estate Committee, who could not be present, and they had agreed to recommend to the Department chairman the allocation of \$10,000 from Estate funds. The chairman at once approved this recommendation.

At this point, Professor Smith agreed to seek approval of his colleagues on the Cockburn Committee for the allocation of a like sum to the project.

At this point, the Committee decided to enlist the aid of Toke Oike.



**University of Toronto Official Entry**

### RACE RULES

#### Scope

This competition is jointly sponsored by student-faculty groups at Caltech and M.I.T. for the purpose of stimulating development of new types of vehicles which are more suitable for an urban environment. It is open to any vehicle which employs novel means of propulsion, control, or construction, and which is operated by students in good standing at an accredited school. Foreign entries are permitted, and a school may have more than one entering team. It is preferable, but not essential, that the students have a significant role in the development of the vehicle. Suitable vehicles include electric, hybrid, steam, and new types of vehicles that produce substantially lower air pollution than present commercially available vehicles. Each vehicle must be driven by a student at all times, and each vehicle must carry exactly one student assistant. A student is defined as a person who has been registered as a full time student at an accredited school for at least 2 months during 1970.

The competition will be divided into three parts. The first part will consist of a series of short events which emphasize performance, the second part will be a race from M.I.T. to Caltech, and the final part will consist of emission measurements to be made in California at the conclusion of the cross country race. Points will be awarded for each part of the competition and prizes will be awarded for winners of each part as well as for the overall winner.

The transcontinental race will be divided into six legs between Cambridge and Pasadena and will pass through Toronto. Recharging stations for electric entries will be arranged by the race organizers in advance. Each leg will be started at a prescribed time on successive days. A number of "time-outs" will be allowed for non-driving activities such as charging, refuel-

*Continued on page 10*

### TORONTO'S BEAST The Lurid Details

The car that Varsity auto buff Doug Venn hopes to drive from Cambridge, Mass., to Pasadena, California, in the August Smokeless Car Race is of a sort known in the jargon of the industry as an electro-propane hybrid. This means that it will have two distinct sources of power that can operate together or on an either/or basis.

The primary drive unit will be de-rated Chevrolet 302 cub. inch. gasoline engine, specially re-worked by Performance Engineering Limited of Thornhill, Ont. to Venn's and the Committee's designs for propane burning.

This engine can be used either to drive the car or to charge seven or more standard lead-acid batteries. Alternatively, and where zero pollution is the aim, one or both generators can operate as propulsion motors, powered by the electric batteries. In a compromise situation, where a minimum of pollution will be tolerable, the propane engine can be run at an optimum steady rate to charge the batteries through one generator, while the other propels the car. Exhaust fumes, already minimal, will be cleansed by catalytic mufflers.

The complicated system of clutches — three of them — that permit all this flexibility will be handled by a novel control system developed by Professor Seshi Dewan of Varsity's Department of Electrical Engineering. Dr. James Ham, Dean of the Faculty of Applied Science and Engineering, says of this control system that it is "the best available anywhere." Professor Sam Sandler (Chemical Engineering) and Professor A. B. Allen (Mechanical), both well-known specialists on combustion, will advise on this aspect of the problem.

Starting from the ground up, here are the preliminary specs for the rest of the car: • Dunlop tires,

• Standard Chevelle front suspension;

• Standard Corvair transaxle;

• The chassis will be mostly custom fabricated of tubular steel in order to accommodate the large number of batteries and extra drive components, although parts of a Chevelle chassis will be used;

• The entire body will be designed and constructed by Ken Bell, a Toronto transportation designer. It will be made entirely of fibre-glass and will have quite an unusual appearance, as will the interior. The streamlined body will be quite functional and should lead to fuel economy on highway runs, due to low friction and drag characteristics inherent in design and methods of manufacture. Low body weight will also compensate to some extent for the heavy load of batteries.

With his ear carefully tuned to the wreckers' grape vine, Doug Venn heard of a brand-new Chevelle that was dumped at Odessa, Ont., after having most of the passenger's side of the body ripped off. The unspoiled front end and chassis will provide the starting point for work and space is now being cleared in the Systems Energetics Laboratory ("the engine museum," as some call it), amidst the Parson's Steam Turbine and the Rand Compressor.

To encourage the curious but still keep sightseers at a safe distance, a low wooden railing will be erected round the work area.

With Cliff Denny and his well-equipped machine shops only fifty feet away, and artist-welders like technician Dick Simpson around, the construction team should be well fixed for anything they want.

Professors Segsworth and S. D. T. Robertson have meanwhile allowed themselves to be conned into taking care of the electrical system. A second V-8 engine will

*Continued on page 8*



# ON YOUR MARK.....GET SET GO

## THE REST OF THE WORLD DOES THEIR BIT

If it proves impossible to clean up the internal combustion engine soon and make its effluents acceptable, the only feasible replacement will be some form of gas turbine, hot air or steam engine, a recent study by the U.S. Department of Commerce concluded.

The short-term prospects of seeing any significant proportion of general purpose vehicles powered by electric batteries or fuel cells, it found, were poor, with electric propulsion likely to be limited to special purpose vehicles or the family with two or three cars.

It is easy to see why they came to this conclusion, for fuel cells have failed to live up to early expectations and electric storage batteries are heavy and cost the earth. The nickel-cadmium battery that M.I.T. used last year in the trans-continental race with Caltech is said to have a face value of \$100,000.

GM's Electrovair, which is a modified Corvair, uses silver-zinc storage batteries with a reputed \$50,000 price tag on them. Its maximum speed, as a result is around 80 mph. The GM experimental Electrovair has a lower top speed of 70 and can last for 125 miles on a charge.

This has not discouraged competitors from trying to find their own answers. Altogether, there are at least 16 companies working in the electric car field, in addition to various academic institutions. At least 20 electric cars are said to be running in the U.S., ten in the United Kingdom and others in Europe and Japan.

Not all of them are being designed to solve terrestrial problems. The U.S. National Aeronautics and Space Administration and several of its contractors are busy trying to develop electric vehicles that can operate on the Moon.

Daimler Benz in Germany has a 66-passenger bus that weighs 16 tons, carries three-and-one-half tons of batteries and has a top speed of 40 mph. Fiat's 103E uses 16 lead-acid batteries and has a maximum speed of 47 mph, and a range of 34 miles. The Japanese Yuasa Denchi Company car also uses lead-acid batteries and reports a speed of 40 mph. and a range of 100 miles.

One British car, the West Special, uses nickel-cadmium batteries and has a maximum speed of 45 mph, and a range approaching 200 miles. A lead-acid model has a speed of 60 but its range is only 25 to 30 miles.

### ACCELERATION Vs. RANGE

Two characteristics must be borne in mind when evaluating the performance of any prospective power source for an automobile:

- 1) *Specific power*, usually rated in horse power or kilowatts per kilogram or cubic metre. Specific power provides the capability for acceleration.
- 2) *Specific energy*, which is a measure of energy storage capacity and is proportional to range.

It stands to reason that it is difficult

to get high specific power and high specific energy in the same unit. However, recent developments in steam car design suggest that this veteran mode of locomotion may yet stage a comeback. The trouble is that it's hard to think of steam cars without conjuring up visions of some 19th-century veteran car with a contraption on the back that belches black smoke and looks like a cross between the Puffing Billy and a primitive mine engine.

Critics talk of bursting boilers, with scalding water and flaming coals flying in all directions after even a minor collision. Then there are more technical problems like that of how to lubricate them while keeping the water free of oil, and how to prevent them freezing in cold weather.

Many of these problems have been solved, mainly since 1930 and today's sophisticated power plants operate on very small amounts of water that is flashed into steam in single tube boilers and then condensed for re-use. To overcome the freezing problem, some use organic liquids for their working fluids, while solid state lubrication suggests another way around fouling problems. Current developments could end up with models that compete with today's internal combustion units in terms of acceleration, speed, range, performance and cost, while lower combustion temperatures and steady rate of burning should substantially reduce the pollution produced.

There are a number of other possibilities, including the storage of energy in a massive flywheel that, in the case of a passenger-carrying bus, might be given new boosts of power, periodically, by

plugging into public power supplies at stops. One of the most promising solutions to the pollution problem for the immediate future, however, seems to lie in the so-called hybrid, a vehicle that might, for example, be driven by a combination of electric power and internal or external combustion.

The Venn car that U of T's Faculty of Applied Science and Engineering is entering for the Boston-Los Angeles race falls into this category. The present plan is to give it maximum flexibility so that it can be propelled by a propane-burning internal combustion engine, by electric motors or by a combination of the two. Electric power will come from lead-acid batteries, charged by the i/c engine, driving the motors in reverse, as generators.

Dr. S. D. T. Robertson, associate professor of electrical engineering at U. of T., has assembled such a combination, using a 20 K.W. Baker electric motor from a fork-lift truck in a Mini Minor, that can be seen sometimes without number plates on Campus roads at weekends. Robertson reckons it does about 60 miles to the gallon of gasoline, a 50% improvement on the Mini, and puts out only one-twentieth of the pollution normally to be expected from these vehicles.

"The hybrid is going to be a good interim vehicle that will help to reduce, but will not eliminate, pollution", he says. "It should give the industry breathing space to come up with better answers — maybe better batteries or better fuel cells. Their great advantage is in fuel cost, so high mileage vehicles like taxis would stand to gain most."



Dr. S.D.T. Robertson with early Toronto hybrid prototype

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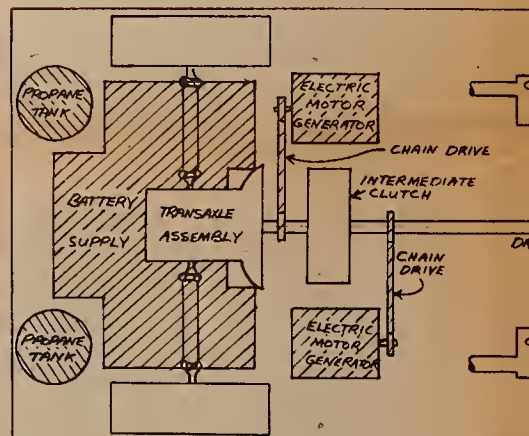
## HOW MANY POUNDS DO YOU

The average automobile produces 3,200 pounds of deadly carbon monoxide and 500 pounds of other poisonous gases for every 1,000 gallons of gasoline that it burns. It also uses more oxygen in 600 miles than a man requires in a year. Most of these pollutants are the result of combustion or other oxidation, but there are others, directly or indirectly concerned with automobiles that aren't.

Just think, for example, of what happens along the succession of operations that ends in re-filling your gas tank. Somewhere out in the oil fields, crude from a well will be pumped into a holding tank and to make way for it, all the sickly, suffocating oil vapour that was inside beforehand will be expelled into the atmosphere. That is only a beginning.

Pumps, probably powered by diesels, will now start pushing that oil along a pipeline, through a chain of other storage tanks and maybe into a ship or, maybe, not. Sooner or later it will go into one of those monster trailers that hike gas round to service stations. In all these operations, and then, finally, as station tanks and auto tanks are filled, unburned fuel vapours will be expelled from containers into the atmosphere, to the frightening tune of thousands of tons a year.

With this fact, it's a pity that so many people still assume that the supply of clean air is limitless. It's not. The earth's blanket of oxygen, nitrogen, carbon dioxide and other gases is only 7.5 miles high and decreases in density exponentially with height.



## The Top-Secret Confidential

### DETAILS

Continued from page 7

provide power for the generators during the development period and when things get going Professor Ralph Anderson of Industrial will take over system analysis.

Dave Billes, 6T1 Varsity Mechanical engineering graduate and owner, president, general manager and general joe-boy of Performance Engineering has already started work on the block of the race engine, which should be ready in about two weeks. Billes is a specialist in high performance internal combustion engines and builds them for some of the Trans-Am cars, such as the Gerry Titus Firebird.

The fibreglass body is due in the

second week in June and will be mechanically complete and ready to bolt on.

On the subject of propane as fuel, Venn says the first advantage is that resulting pollution is fractional, as compared, with gasoline with the massive additional advantage that it also needs no lead additives.

Secondly, propane has many desirable combustion characteristics. Since it is delivered to the carburettor in a gaseous state, rather than as a liquid, a simpler and more effective fuel injection system is possible.

Being gaseous and almost perfectly premixed, burning will be extremely clean and complete. The absence of lubricant contamination will mean greatly extended life for the engine.



# ET.....GO.....BANG

## YOU GET TO THE GALLON?

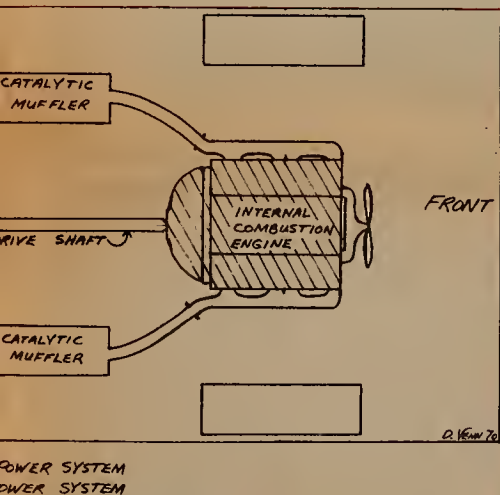
This thin blanket, on which our life depends, is being progressively saturated with more than 100 different pollutants, spewed out by various sources at a rate of millions of tons per day.

Exposure to such pollutants as sulphur dioxide and nitrogen dioxide have been found to cause asthma, emphysema and chronic bronchitis and deaths from these causes have in some countries been shown to be twice as high in industrial areas as they are in farm communities.

Present-day contamination of the air is more than a damage to health, mental and physical. It has already changed the face of nature, the appearance of the countryside.

In Los Angeles, for example, air pollution has reduced the flower-growing industry's production by 60 per cent. Once a \$14 million business, it now scarcely reaches \$4 million. In Florida, which produces one-third of the world's phosphates, an area of 500 square miles has been so saturated with fluoride emissions from phosphate factories that cattle-breeding, once a major source of income, is no longer possible, because of polluted pastureland.

Even the weather has been altered by the perpetual yellow-blue haze that characteristically overhangs industrial areas. Met records show cities have markedly higher temperatures, 30 per cent more fog, ten per cent more cloudy days and ten per cent more rain than surrounding rural areas.



## ial Plan of Toronto Entry

## INTERNAL COMBUSTION STUDIES AT U OF T

By Professor A. B. Aman

Interest in the internal combustion engine and the combustion efficiency of the engines extends back to the earliest days of the Department of Mechanical Engineering. The former head of the department, Prof. E. A. Allcut carried on an extensive programme of experimental work on the engines available to him. He was also instrumental in arranging for a Combustion Group within the department sponsored by the Defence Research Board.

This group was active within the department for a number of years

and the present graduate research programme into engine combustion has been an outgrowth of the work started by the group. The early experimental work dealt mainly with the effects of the physical engine-operating conditions on the efficiency of combustion. A great number of experiments were performed and large body of information on changes in conditions of combustion was accumulated.

In the last few years, the emphasis in the research has moved away from the mechanical engine

Continued on page 10

## INDUSTRY AND UNIVERSITY BACK PROJECT

Varsity's entry in the M.F.T.-Caltech Smokeless Car Race would never have been possible had not past members of the Engineering Faculty, like Wallace, Cockburn and Haultain established special purpose funds that can be used at the discretion of their successors. The project is also being aided in very substantial ways by friends in industry.

Dunlop, Canada Ltd. for example, immediately offered tires for the project — "the best that we have in standard lines". Superior Propane Ltd. promised to supply all the propane bottle gas that was needed by the project in Canada and to see what could be done to help out with fuel needed during the trials and race in the U.S. Fiberglas Canada Ltd. offered to supply all the glass needed for the auto body.

The Air Pollution Control office of the Province of Ontario promised to make available one of their mobile gas analysis units when the car was ready for combustion tests. Other departments of the Provincial Government are presently considering ways in which they, too, can help. Many of the necessary automotive parts will be generously supplied by Dominion Auto Accessories Ltd. and Performance Engineering will provide a number of the extremely expensive engine parts at cost.

We have to thank, as well, the company which anonymously donated \$100.00 toward the cost of the project.

One of the major sources of

project funds was the W. A. Wallace Foundation.

When Prof. W. A. Wallace of the Department of Mechanical Engineering died in 1968 as the result of a fall from the deck of his motor cruiser, he left the bulk of his estate for the use of the Department of Mechanical Engineering. He stipulated that the funds should be used for equipment or materials which would not normally be supplied by the University.

Prof. Wallace was expert in internal combustion engines and had a specialist's interest in automobiles and their fuel systems. When the opportunity arose for the Department to design and build an entry for the Clean Air Car Race, it seemed particularly appropriate to seek the necessary financial support from the Wallace Estate Fund.

Prof. Wallace will be remembered by a generation of engineering graduates of Toronto who took his courses in Heat Engineering and Internal Combustion Engines, enlivened by anecdotes of a long career which included a stint as engineering officer on the South American oil tanker run, wartime service in the engines laboratory of the National Research Council, and engagements in Canadian industry.

The other source of funds was the Cockburn Unit.

Thousands of engineering graduates from the University of Toronto affectionately remember "J. Roy" as the tall, slender professor who illustrated his Descrip-



Prof. I.W. Smith of Cockburn Unit

tive Geometry lectures with precise blackboard drawings using, with equal ease, either the right or the left hand depending on which direction he faced the class. When he retired in 1950 as Professor and Head of the Department of Engineering Drawing he had completed nearly fifty years of academic teaching at the U. of T. His colourful history included a distinguished military career in France and the Middle East during World War I, a flair for boat design including steamers on the Muskoka Lakes, and an enthusiasm for figure skating that continued to his death, in 1964, at the age of eighty-five, following a fall on the ice.

Although outwardly austere, Professor Cockburn had a quick smile and a warm feeling for students. His continuing influence on this Faculty has been assured through a bequest of nearly half a million dollars, a portion of which supports the Cockburn Unit in Engineering Design. This latter facility was established by the Applied Science and Engineering Faculty Council, in 1969, "for the enrichment of human resources and the encouragement and development of the creative art known as 'engineering'".

The Cockburn Unit in Engineering Design is headed up by a Cockburn Professor (Professor I. W. Smith being the first to hold this appointment) and has a faculty-wide structure of Cockburn Associates. These are presently Professors D. L. Allen, J. A. Buzacott, C. Hershfield, R. S. Segsworth, I. H. Spinner and R. C. Tennyson representing respectively Mechanical, Industrial, Civil, Electrical, Chemical and Aerospace Engineering. "Design" is interpreted broadly as the creative aspect of engineering in which solutions to man's needs are found through the application of science and technology.

Attention of the Design Unit is now focussed on bringing into the Faculty "live" problems from various segments of industry and society and using these in the training of undergraduate and graduate engineering students. A new, elective course, "Engineering Design Project", will appear in the 1970-71 First Year Curriculum and will, it is expected, provide solutions to some of these problems.

The Clean Air Car Project would like to thank these companies and units for their generous support.



The Late Professor Wallace Among G.M. Brass!!!!

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## RACE RULES

Continued from page 7

ing, making repairs, etc. All existing traffic laws must be obeyed.

### Qualification

Any school that expects to enter must signify its intentions in writing by March 30, 1970. In addition, the vehicle must pass the following qualification tests

1. Satisfy all inspection and registration requirements for the state in which the vehicle is licensed.
2. Drive 60 miles in 90 minutes or less without refueling or recharging on a prescribed nearly level course.
3. Accelerate from 0 to 45 mph in 15 seconds or less.
4. For vehicles which require electric charging facilities, satisfy any additional requirements specified by the Electric Vehicle Council.
5. Demonstrate that the vehicle is, in some respect, a significantly lower emission vehicle than conventional 1970 automobiles.

### Performance Measurements

Starting on August 19, 1970, the following performance tests will be made in or near Cambridge:

1. Time to accelerate from 0 to 50 mph from a standing start.
2. Top level speed, up to a maximum of 80 mph.
3. Energy consumption for a trip of 60 miles in 90 minutes
4. Time trials on a short-course competition designed to test road handling.
5. Qualitative assessments of safety by three or more independent, qualified persons.

For each of the five events the vehicles will be listed in order of increasing performance, and a number of points will be awarded equal to their position on each list.

The energy consumption measurement will be designed to determine the total fuel and/or Kw-hrs required to refuel and/or recharge the vehicle to the condition existing at the start of the test. For fossil fuels, the usable, energy per unit of fuel will be assumed to be 35% of the per-unit heating

capability. Hybrid vehicles may use either or both power sources as they see fit. All vehicles must start this test in a cold condition after at least 8 hours of inactivity.

### The Race

The race will start at 12:00 noon August 24, 1970, in front of the Student Centre at M.I.T. The race will be divided into six legs and a corrected time will be determined for each leg. For each leg the vehicles will be ranked in order of decreasing corrected time and a number of points will be awarded equal to their positions on these lists. The vehicle with the highest point score at the end of the race will be deemed the winner of the race prize.

Each vehicle is required to obtain written receipts for the amount of fuel obtained during the race and/or kw-hr of energy obtained from the charging stations. In addition, each vehicle must refuel or recharge immediately after the race so as to determine the total energy consumption during the race.

In computing the corrected time, the elapsed time is considered to be the total time required for the trip, less time for allowed time-outs. For each leg, each contestant will be allowed a number of "time-outs" which do not count as part of the elapsed time.

A time-out may be called after 60 or more miles have been traveled since the previous time out or since the start of that leg. A time-out may also be called after less than 60 miles in the case where the car is being recharged from charging stations which were set up at slightly less than the normal 60 to 80 miles spacing. No time-out can be less than 30 minutes nor more than one hour. The time-outs may be used for activities such as charging, refueling, and making minor repairs which can be done by the driver and his assistant using tools carried in the vehicle. If a repair cannot be made by the driver and his assistant, or requires special tools or replacement parts, not carried in the vehicle, it must be done between

legs, or must count as part of the elapsed time. No repair is allowed on any emission control equipment either during the race or after the race and before the emission measurements are made.

If a vehicle is towed for any reason, it must be towed or driven back to the point from which the tow commenced before the trip can be resumed.

Charging facilities will be set up for use by vehicles that wish to use them. They will be set up at 60-80 mile intervals, and a standard connector will be used for connecting to either 208 v. or 240 v. 3-phase, 60 cps. power. Maximum charging rate will depend upon local facilities, but will normally be between 50 and 100 KVA for a balanced 3-phase load. Any non-official charging facilities may be used without penalty. A special time-out can be called by a member of the race committee if a charging station requires a car to wait more than 5 minutes because of lack of charging capability. A special time-out automatically ends when charging facilities become available. Each car must carry a watt-hour meter, and records must be kept of the location of each charging facility used and the kw-hr of electricity received.

For vehicles which require special fuels, it is the responsibility of the entrant to make sure that these fuels are available at suitable intervals. Time credits beyond the normal time-outs are not allowed if fuel is not available when and where needed.

### Emission Rating

Emission measurements will be made on combustion powered vehicles at the conclusion of the race. Measurements will be made by a bag sample method in the following categories:

1. Hydro-carbons.
2. Carbon Monoxide.
3. Nitrous Oxides.
4. Sulphur Oxides.
5. Lead.
6. Other particulates.

The measurements will be made for a driving cycle which will be specified by April 1, and which will include a cold start, a high speed run, and acceleration and deceleration. The emission will be computed in terms of grams of pollutant per kilogram of fuel consumed during the test run. This factor will then be multiplied by the kg of fuel consumed in the race in order to arrive at a total emission rating for the vehicle.

Electric vehicles will be assessed an emission penalty based on the kw-hr of power consumed and on an average rating of emission per kw-hr for the power companies in the U.S. This rating of emission per kw-hr will be established prior to April 1 by the U.S. Dept. of Health, Education, and Welfare on the basis of the best available information. Hybrid

## TORONTO'S CONSTRUCTION CREW HAS INTERNATIONAL FLAVOUR

Cliff Denny, Mechanical's Technical Services Supervisor, is going to have a busy time between now and June but both his staff and his workshops are well-equipped for the task ahead of them.

Cliff, Sudbury-born, has worked in mining, construction and railway engineering and in Sicily, during World War II, received the M.B.E., and a handshake from King George, "for meritorious service" in the Royal Canadian Engineers.

Dick Simpson, the workshop foreman, is a stern (but some say

wild) Caledonian with engineering in his bones. He wields a welder's torch with the skill of an artist. Wes Babcock, operating engineer II, is from Wiarton, Ont., and served at sea and in the north. His special responsibility is for the engines laboratory.

Other in the workshop team include Adolph Ancans from Latvia, Norbert Spyth, Johann Rein and Horst Gaensel from Germany, Harry Rogers from Toronto, Peter Peros from Yugoslavia and, from Austria, Rudolph Seidl, who has the tough job of keeping track of all the technical stores.



From L to R: John Rein, Bert Spyth, Richard Simpson and Cliff Denny

vehicles will be penalized for both fuel consumption and kw-hrs consumed according to the amount of each required for the trip. For each measurement the vehicles will be listed in order of decreasing emission and a number of points will be assessed which is equal to the vehicle's position on this list. The winner of the emission rating part of the competition will be the vehicle which accumulates the largest number of points.

### Judging

The rules may be changed at any time prior to April 1, 1970 by the race organizers. Prior to April 1, 1970 a race association will be established. It will consist of non-competing students from MIT and Caltech and will be charged with managing the competition. After April 1, 1970 the rules may only be changed after members of this association have discussed proposed changes with each entrant. In the event of a tie on any event or any portion of an event, the total points for the tied positions will

be evenly distributed. The final results will be decided by the race association.

Prizes will be awarded for the entrant with the most points in each event. In addition, an overall prize will be awarded for the entrant with the largest total point score.

The race organizers are: Prof. Jerro Shapiro, Caltech, Pasadena, Calif. 91109; (213) 795-6841, ext. 1228.

Prof. Richard Thornton, M.I.T. Rm. 13-3005, Cambridge, Mass. 02139; (617) 864-6900, ext. 4639.

## STUDIES

Continued from page 9

parameters and the experimental procedures have been designed to allow a greater study of the physical conditions of combustion. The work is designed to give further information on pressure development as related to flame motion within the engine cylinder. The physical conditions of the mixture within the cylinder are being studied more closely with a view to an understanding of the processes leading to combustion generated air pollutants.

It is necessary to understand all of the processes of combustion as they apply to the engine, if the source of automotive air pollutants is to be, first, identified and second, controlled. The experimental work in the Mechanical Department is at present studying the physical aspects of these engine combustion problems and it is hoped, in the future, that the department may assist in studies which will allow a better understanding of the chemical problems.

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## THE ENGINEERING SOCIETY And You . . . . . Our Frosh

By Mike Lee

MIKE LEE, FIRST YEAR PRESIDENT Kudos to our frosh initiators! If it weren't for them, we might've found ourselves still lost in the dim hallways! And without the Engineering Society, perhaps we would have remained lost with our ears cocked for leading information and that also with the danger of having them pricked with things miss-leading!

Our student stores operate the sale of a variety of grabs in pens, pencils, rubbers and french curves and supplies instrumental to our profession — all reasonably priced and easily available.

While artsies languish in the seat of learning with a copy of our Toike, we are returned a vast measure of informatory feedback from a varied source of literary discharges.

The wide broadlike centres of attraction for various weekends like the Drilling Hall and the Cannonned-Balls, furnish us with good floor-space for rhythmic approaches in the loco-motion and acid rocks. While cultivating a spirit of mutual assistance and co-operation among the members of the Society, the fast moving hands also climax situations with the L.G.M.B. All these activities enhance our pleasure in the academia.

As for informatory feedback

(already channeled to your class reps):

In keeping with Faculty-Student co-operation, the Examination Committee of the Faculty Council recently accepted an Engineering Society proposal to the effect that no examinations be held during the days of the Passover. Moreover, the copy of the time table is included in this issue of the Toike.

On the other hand, the Faculty Council also requested that elections be held to an allotted seating for about twenty students. Five seats however are allotted to us frosh, all evenly divided among our ten frosh groups. And my thanks to the students who were nominated and interested. I sincerely hope that they will effectively present our views in our strive towards a better and relevant education.

However, much of everything wouldn't have been possible without your aid. Many of us have been quite passive this year and I would like to call upon you to pull up your socks and turn on life's endless screw-thread of action and stay involved.

A strong Engineering Society is everyone's business!!! We need you!!

Mike Lee  
FIRST YEAR PRESIDENT

## ENGINEER RUNNING FOR SAC PRESIDENT

Wayne Richardson, a fourth year Mechanical Engineering student, is running for SAC president.

Richardson is deeply concerned that the educational reforms necessary to bring about a more relevant learning experience in the university may be dying.

He is convinced that one of the



Wayne Richardson

main reasons for this is the weak and unrepresentative nature of the SAC in the past couple of years.

Richardson is convinced that the SAC must be transformed into the kind of strong, relevant, and representative organization that can speak for the student body and be confident of its support.

He thinks that SAC has the potential to be a powerful agent in the development of the kind of community in the university talked about in the CUG report . . . if that transformation is made to take place.

While not professing to have any magic cures for the illness of SAC, Richardson thinks that the obvious place to start is with communications. The SAC president should be the person to maintain contact between SAC and all parts of the

University.

He must actively seek out the opinions of the student body on the status of their learning experience.

He must actively ensure that the students are made aware of and involved in the policies evolved by SAC in its attempts to solve the problems faced by students.

Richardson knows that building the communications links that he would need as SAC president would be a long and difficult process. He thinks, though, that he can do the job.

He has been an Engineering SAC rep for two years now, which means that he won't have to spend the first three months of his term getting to know how SAC works.

He has been the chief SAC negotiator with the University administration on matters connected with the Campus Center, which means he won't have to spend the next three months learning who to talk to at Simcoe Hall.

He has tried to do something constructive on SAC . . . with briefs on the Campus Center, Hart House, and the Spadina Expressway . . . which means he knows how frustrating and unproductive the petty factionalism which characterized SAC this year is.

Wayne Richardson thinks that the transformation of SAC will be a two-part process . . . it will have to avoid the mistakes that it has made in the past. More important, though, it will have to have a positive direction for the future.

Richardson wants to experiment with the mass media as a means of informing the student body about SAC policies. He wants to develop a coherent, imaginative

orientation programme which will make students aware of some of the problems of the University and their place in it.

He wants to make better use of the Varsity as a vehicle for informing students about what SAC is doing.

He is running with Ken McEvoy, a student at Vic. McEvoy is another experienced SAC rep . . . having served on the Executive Commission of Sac and the CUG programming committee this year.

The experience McEvoy gained on this committee would be of invaluable assistance to SAC in the coming year.

Richardson and McEvoy are both convinced that SAC must work hard to develop the spirit of trust and co-operation among all parts of the university that is necessary if the quality of our classroom learning experience is to improve. They feel that structural changes alone are not sufficient to affect that improvement.

Richardson and McEvoy want very much to transform SAC into the kind of responsible, representative organization that can create that trust.

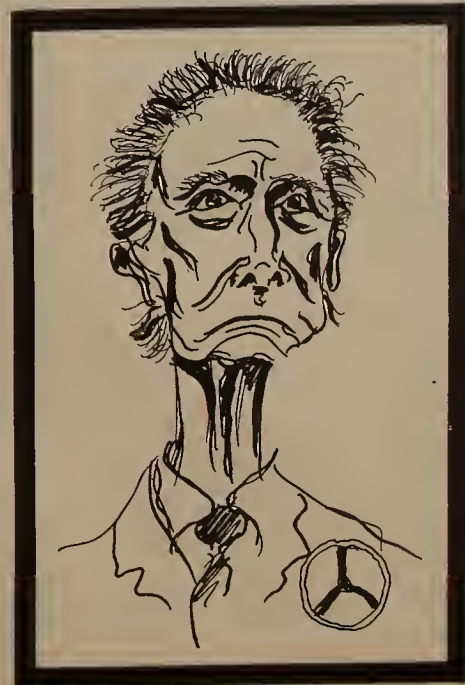
They think that the kind of irresponsible political commitments that serve only to divide the student body should be avoided at all cost. They think that peoples ideas should be the important consideration on SAC, not where they stand on the ideological scale. They think that communications with the student body are of top priority.

Wayne Richardson and Ken McEvoy have some positive ideas and a sound programme that just might make SAC work.

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many  
more



IN MEMORIAM



# ENGINEER EDUCATION A TIME OF TRANSITION

By Art McIlwain

Engineering education at the University of Toronto is going through a period of transition. In response to initiatives of the Engineering Society, the CUG report, and a period of almost universal unrest on North American university campuses, this Faculty is taking the first hesitant steps along the road to a new type of university.

The philosophy underlying this change is one of involvement. The structures being proposed all have one thing in common. They all presuppose that the felt learning experience in the classroom can be improved by involving all those who participate in that experience in some of the decisions which affect it.

The first evidence of the change in attitudes from the old "train 'em for the drafting table" approach was the admission of student representatives to the Faculty Council this year.

Discussions with many of the department chairmen and senior administrators in the Faculty reveal a strong concern that the Faculty transform its thinking so that it can retain its hard earned and well deserved position of leadership in Canadian Engineering education.

The validity of all these changes is now open to question, however.

There has been a very small response to the annual call for Engineering Society representatives. The position of president is being filled by acclamation for the first time in memory. Several crucial positions have no one filling them at the time of this writing.

This seeming lack of interest will provide fresh ammunition for the few reactionary Faculty members who never wanted to change from the drafting table in the first place. They will claim that students just don't care; that the Faculty must force feed the student body if they are ever to learn anything. That they are incapable of making a contribution to their learning experience.

And the worst thing about it is that, without a strong Engineering Society, their obviously simplistic arguments may well carry the day.

It is not too difficult to see that one of the main reasons that people are not interested in participation in bodies like the Engineering Society that they see no way of doing anything really worthwhile about their courses on them. They don't see anything worthwhile coming about as a result of the initiatives of the Engineering Society, so they say why waste my time.

Which is really little more in the

long run than alienation from the established procedures for affecting meaningful change in the University.

But the "way" of the present situation is not really too relevant in deciding what to do about it in the future.

What has to be decided in the coming months in this Faculty, and to an equal extent in the whole University, is whether the direction that CUG and other reform documents would have the university move is the correct one.

The decision will be made in Engineering, at least, not so much by the rhetoric and writings of the student leaders, or the faculty leaders, but by the actions of the members of the Faculty.

The students will have to realize that, if we want to do anything about the irrelevance we feel in our classrooms, we will have to participate. We will have to realize that, we can't leave the decisions now made by the Faculty Council and others up to non-students.

As students, though, we will probably not be convinced of this until we see how the "full" membership on the Faculty Council works out. We will have to see some positive results occurring before the transition to a participative education will really become part of our individual lives.

And that is really too bad. There are quite a few dignified old men around this place (many of them not more than 23 years old) who think that such a system will never work.

And probably the only way it will work is if we make it.

In the coming year the Engineering Society will have to work in close conjunction with the newly elected Faculty Council representatives. The Engineering Society, as the established representative of the Student Body, has the resources and the facilities necessary to help the Faculty Council representatives inform themselves very fully of the feelings of the students on the wide variety of issues dealt with by the Faculty Council.

The Faculty Council representatives, on the other hand have the time to devote their full attention to these problems. It is probably in the best interests of the Faculty as a whole if the two groups work together.

If they can achieve some positive improvements in things which really affect the students in this Faculty, the "lack of interest" seen this year will not be seen again.

If not, the dignified old men will have won.

And Engineering in Canada will have lost.

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Human Sacrifice by Eng. Sci. Ends Civil's Chances in Engineering Chariot Race.

## GASOLINE AND OLD IVORY

No kidding guys - this was written by a staff member  
who wishes to remain anonymous.

What's all this crap, eh, about a Great Anti-Pollution Car Race? What's all this, or is it? Seems like they come right out of the Tower, practically hand-in-hand, for God's sake, a little band of students and professors . . . clunk . . . clunk . . . clunk down the ladder, all starry-eyed with science they're going to apply to a real, live, heavier-than-air solid-state iron-and-steel engineering job — you know . . . purr, purr, sizzle . . . watch the goddam G-meter, Mike! . . . clatter, purr . . . boom!

BOOM!

Heh, heh, hope we don't have to pick up the pieces, heh, heh, heh. Way out in wild Nevada, or some place. Stick up a marker, maybe like

HERE LIE SOME GUYS: x's AND y's CONTRIBUTED TO THEIR DEMISE. MU-GAMMA SPACE AIN'T FOR A RACE AND DELL SQUARE RHO WON'T GO THE PACE — IT'S HARDWARE GETS FROM PLACE TO PLACE AND HEADS THAT AREN'T TOO WISE.

Off they go, no smoke, no stink, do damn-all, out for the honour of dear old Varsity (ah, the ghost of John Held, Jr. that lives with the moths in my 1926 coon coat!) down to Boston, rah, rah, rah! all shin-

ing blue and white with magnesium fins and titanium tits, down to M.I.T. . . . "Gee, guys, look what's come out of the True North and that stuff, look who's challenging. Torana? Where's it at? Arts college or theology, I guess. Never heard of the joint. Me, I only know about Waterpoo or Loowater, something like that, where McLuhan's Dean of Engineering. How does this crate work, anyway?"

Ah, yes. How does it work? How's it going to get to Californiay, eh? Well, sirs, it's what they call a hybrid. Bubble formation in the flashing of superheated liquids translated to motion in the mu-gamma space concept — damn it, there's mu-gamma cropped up again, there must be something in it — or maybe the principle has to do with stress configuration in square holes in circular plates in an ionized massage medium — how (to be honest) the hell would I know? I just listen with my popping eyes and report faithfully and such. So it's a hybrid vehicle they're designing (the second one around here — the first was called Mickey Mouse . . . this one's King Kong) — and you might call it a bastard except four-letter words are old stuff, ca. 1969, and it won't be a sexy bas... hybrid because sex

is out too, even Heff is looking about for something to up-date skin in his learned periodical . . . maybe his new kick will be anti-pollution cars with white puffs on their arses for all I know, but you've got to look ahead and what's ahead right now in September is the road from M.I.T. to Caltech running from Holiday Inn to Holiday Inn with glory in the offing and dear old Varsity (maybe I could eject the moths and the ghost) putt-putting (or screaming or buzzing or bumping or farting) along, demonstrating the triumph of mind over matter or some damn thing (mu-gamma, maybe?) showing the world that the printout's the imprint (How's that, Marshall? Want to make something of it? THE PRINTOUT IS THE IMPRINT. Got a ring to it, eh?) and never a whiff of CO or hydrocarbons or carbohydrates or Molson's or whatever. God, one day you're going to have to live in air so clean it either won't support life or it's so invigorating we'll have to stock the pill in coke machines, and it's all wonderful, just so our boys get there, so generations of hep little ba . . . hybrids will say to generations of mummy-hubbys Torano's for me. Poowater? Naw. All they do is freaking science. I want to be an engineer!



## J.D. POTTS TROPHY FOUND

After a relentless search of three years the world renounced J. P. Potts trophy has been found (photo above). The priceless prize, awarded to the winners of the chariot race, was discovered in the mechanical common room, cleverly disguised as a john.

Mr. R. Rottencrotch, Custodian of the mechanical Bldg. confessed his amazement at the discovery, and declared that full credit belonged to his fearless assistant R. Omritt for the discovery. One day (a clear one) while making his rounds (emptying johns) R. Omritt began polishing the old pot in the corner of the common room and low and behold, an inscription appeared. After Reading it, Omritt immediately notified his superior, who immediately notified his Emie and eventually word got round.

John Ambrosia, chairman of the Mech. Club, pleaded innocent to the charge that his cohorts had stolen the trophy in 1966 after 84 consecutive defeats at the annual event and coveted it among an elite group of pseudo-intelligentsia.

As a result of the find the trophy will be awarded to the rightful holders, the Engineering Keeners (scientists) until Ambrosia and his motley crew abscond with it again.

As it may be believed the race was great, however several things detracted from it. First of all Engineering Science wan. Secondly hardly anyone brought shit to throw. Last year featured raw fish raw eggs octapie and two jars (without jar) of peanut butter. Two people were permanently maimed and were just. Next year try harder eh boys.



## THE SILLY-CONE PLAYMAKES OF THE YEAR

TOIKE OIKE keeps abreast of new hybrid strains.

The Toike Oike is truly excited about the new technological developments which allows the pleasure of titillating the sense of smell as well as sight. On the right we have an example of this new process.

Merely scratch the surface of the paper With your nails or a pen point which will break open the tiny cells and free the pug-nacious delights which add so much to the effect

We must apologise for the diluted scent and therefore recommend that you get within 3 inches of the page.



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# SPORTIOKE

## WATERBALLERS

Giving a full, all points rundown of each and every game would at most be redundant, so I will. THE NUTS, otherwise known as ENG TEAM I has at this point lost only one of their five games. By far, the best competition came from VIC (who just narrowly defeated and outgrappled the NUTS 4-3) although the JOCKS (PHYS-ED) gave us a good name (6-5 for ENG.)

It must be noted that in this last game that several of our superstars were out of the lineup with various ailments (flu, girlfriends, V.D. etc. — hi Paul!) but I can't understate the fine playing of those who were present — namely Barry the Bowerman, the Formidable GESING BROS., REMMEL the RED in goal, MARLIN MARTIN, LUCKY LUCAS and RED HOT RICK. A little less fortunate are the BOLTS (TEAM II) having lost two games of the five played.

Since then we've improved 80% (better than the attendance anyway) with the help of COUGAR BABY CRAIG, CRASHER CRASE, BULLET FAST HOBBSY, ERIC THE INVINCIBLE, RUDI THE READY, MEL THE MANGLER, RONNY THE F!, FARLY THE REARLESS, PAUL the FEELER and me the WINGED WARRIOR (otherwise known as "there's goes the fast guy"). Although our last game (15-0 over Pharmacy) was no indication of our potential the steady improvement in ball handling and underwater demolition tactics

have put both teams in good contention for first spot. But still at this time we are in need of a few more experienced players (either in ball handling, wrestling or fast endurance swimming). So if you aspire to play a good conditioning game of water polo do come out to our games — or to the practices Saturday mornings at 10 a.m. HART HOUSE POOL.

## PACKING-IT-IN

Being the final issue, the Toike Oike Sport's Staff (Queen Mae, Hizzes Dizzey Doh and Loaded LILLY) wish to extend their many thanks to all our writers. (Perhaps it would be more appropriate to thank our FATEFUL readers for their unbending support.)

A special note is extended to ZBIG GALUSZKA for his efforts in obtaining copy from the noted well-versed coaches of our inter-faculty teams.

This very prestigious position of SPORTS Editor is up for grabs as of this issue. Any person who is interested in any way, shape or form in helping with the Sportioke next year, please contact Doug MacCallum at 928-2609. Truthfully, the job is not time consuming or difficult but it is Fascinating (?). One of the more challenging decisions comes about 4:00 o'clock on Make-up day. Do we order a Pizza or Harvey's barf burgers? So if you are looking for a Man's Job with the chance of meeting the world be sure to give the Sports Editor's job a definite thought.

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# TOIKE JOIKES

Alice: What is the difference between a bad marksman and a constipated owl?  
Spot: One is all shoot and no hit and the other is all hoot and no shit.

The latest issue of the engineering dictionary for the benefit of Arties defines MISTRESS as something between a mister and a mattress.

He (after six martinis): Another one will make me stiff.  
She (After six martinis): Another one will make me tight.  
So they both had another martini, then proceeded to go up to their hotel room, only to prove them both to be wrong.

A young couple arrived in Paris; they were on their honeymoon and really in love. The young man was smooching and whispering sweet nothings in his bride's ears as they got off the airplane. All of a sudden, he spotted the Eiffel Tower. Turning to his bride he asked, "Honey, shall we visit the Eiffel Tower first or should we go to the hotel room?"  
She slyly answered, "Let's go to our room first, the Eiffel Tower will still be standing tomorrow."

The young wife was in the bedroom towel-drying off from her morning shower when she heard the back door slam. Thinking it was her husband, she called out, "I'm in here, darling, I've been waiting for you."  
To which a deep voice answered, "I think you ought to know, madam, that I'm not your regular milkman!"

As they moved apart, the engineer lit their cigarettes. She snuggled close to him again and pulled the bedsheets around their chins.  
"Darling," she cooed, "how many have there been before me?"  
After a few minutes of silence, she said, with a slight pout, "I'm still waiting."  
"Well," he replied, puffing thoughtfully, "I'm still counting."

"The trouble with Peter," commented the showgirl to her roommate, "is that once he starts kissing you, he never knows where to stop."  
"That's funny," replied Diane.  
"The last time I went out with him he found the perfect place."

Brian to his girlfriend with the astronomical figure: "Did you know that sexual relations on the moon is called 'outercourse'?"

The engineering handbook defines CONVERSATION PIECE as a girl men like to talk about.

A plane was just about to take off from Kennedy Airport. The pilot picked up the speaker and announced "Welcome aboard American Airlines Flight 508. Please fasten your safety belts and leave them fastened until you receive the signal to unfasten them. We will be flying at an altitude of 6,000 feet and expect to reach Miami in 2½ hours."

The pilot flicked the switch on the loudspeaker, but it didn't go completely off and he (not realizing he was still on the air) turned to his co-pilot and said, "Boy, what I wouldn't give for a hot cup of coffee and a piece of ass." The Stewardess, who was in the back of the plane, hearing this, realized that the pilot didn't know that he was still on the loudspeaker and could be heard and started to run up the aisle to tell him.

A little old lady passenger grabbed her arm as she ran by, and said, "Sweetheart, listen to me. If I were you I'd let him finish his coffee first."

Knar confesses that she's ticklish on her points of honour and under her arms too.

A seventy-five year old man went to see his doctor with a problem. He was marrying a seventeen year old girl and was very much afraid that he would fail on his honeymoon. The doctor told him not to worry, he had just received a new herb from Japan but there was one catch. In order for it to work he would have to clap his hands three times to make it go up and whistle to make it go down. The old man was elated as he left the doctor's office.

On the night of the honeymoon, he told his new bride to go into the bedroom while he prepared himself in the bathroom. In a few minutes he clapped his hands three times and walked out of the bathroom. His bride took one look and whistled.

The stockbroker wrote a young and pretty client, "I have a big thing in hand which is expected to rise shortly. If we get together, we would make something nice out of it." And she answered, "Sorry we can't get together at present, as I have my monthly settlement to tend to, but if you can keep your offer standing for a day or two, I can undoubtedly find an opening for it."

Gus: Will you resist if I kiss you?  
Ceeta: Why no, I'll take it lying down.

Parked car . . . moonlight . . .  
"Goodness!" she exclaimed. "It's three o'clock. I should have been in hours ago."  
"So should I," he murmured disgustedly.

Honeymoon couple on first night:  
"Goodness Fred, what a small organ you have!"  
"Well, I didn't realize I'd be playing in a cathedral," was the retort.

Miami Beach lifeguard to Alice:  
"I've been watching you for the last three days, Mr. Westbrook, and you'll have to stop urinating in the pool."

Alice: "Everybody urinates in the pool."  
Lifeguard: "From the diving board?"

A drunk on the train noticed a mother wearing a large, healthy baby.

"Lady," he said, "How come your baby is so big and fat?"

"I don't know," she said, "all I feed him is milk and tomatoe juice."

The drunk considered a moment and then said: "Well, which one is tomatoe juice?"

## IMPROVED EXAM TIMETABLE

THE FACULTY COUNCIL OF THE FACULTY OF  
APPLIED SCIENCE AND ENGINEERING

HAS APPROVED THE FOLLOWING DATES FOR EXAMINATIONS

THIS ACADEMIC YEAR (DENOTED WITH AN X)

SUN. MON. TUES. WED. THUR. FRI. SAT.

12	13	14	15	16 X	17 X	18
19	20 X	21	22	23 X	24 X	25
26	27	28	29 X	30 X	1 X	2

APRIL

THIS AFFECTS YOU - READ IT!